

ROYAL ASTRONOMICAL SOCIETY.

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CAPT. W. H. SMYTH, R.N., Vice-President, in the Chair.

Capt. F. Blackwood, R.N. of the Senior United Service Club, Pall Mall, was balloted for, and duly elected a Fellow of the Society.

FLORA.

Observations.

SOUTH VILLA. Equatoreal. (M.M. Bishop & Hind.)

	Greenwich M. T.			R. A.			N.P.D.		
1847.	h	m	s	h	m	s	°	'	"
Oct. 18	11	40	4	5	3	39.23	75	56	28.2
	15	4	10			40.63			37.4
	15	52	27			41.09			38.3

These are the *first* Observations of *Flora*, the evening she was discovered. They were omitted by oversight in the last Notice.

CAMBRIDGE.

(Professor Challis.)

	Greenwich M.T.			R.A.			N.P.D.			No. of Comp. R.A. N.P.D.		Star of Reference.
1847.	h	m	s	h	m	s	°	'	″			
Nov. 15	11	53	15.4	4	53	33.46	76	13	32.9	4	4	B.A.C. 1542
		55	55.6			33.15			30.6	10	7	<i>a</i>
16	13	10	18.6	52	36	50	13	15.6	Meridian			
17	13	5	27.7	51	41	34	12	54.3	—			
18	13	0	35.5	50	44	90	—					
19	12	55	41.4	4	49	46.54	76	11	54.3	—		

“The equatoreal observations were taken with the Northumberland telescope. No correction is applied for parallax. The place of *a* was determined by two transit and two circle observations as follows:”—

1847
Nov. 15 Apparent R.A. = 4 53 46.34 App. N.P.D. = 76° 18' 45.9"

Elements.

By Mr. Hind.

“Six weeks’ observations of *Flora* have sufficed for the determination of an orbit which I think will not require any material correction. From our observations of October 18, November 9, and December 5, I have calculated the following elements, taking account of all the small corrections, and employing the general method of Gauss, with some slight modifications for adaptation to this particular instance. The orbit is almost identical with that deduced by M. d’Arrest from the Berlin Meridian Observations up to November 17.

Epoch, 1848, January 0^o, Mean Time at Greenwich.

Mean Anomaly	35	39	1 ^o 87	} M. Eq. 1848 ^o 0
Longitude of Perihelion on the Orbit	32	48	44 ^o 95	
Ascending Node.....	110	19	6 ^o 21	
Inclination.....	5	52	47 ^o 76	
Angle of Eccentricity	9	1	26 ^o 10	
Log. Semi-axis Major	0	3426076		
Mean Sidereal Daily Motion	1086	66375		

“These elements represent the middle observation with an error of + 0^o 9 in longitude and — 0^o 1 in latitude.

“It appears, therefore, that the period of revolution of *Flora* (about $3\frac{1}{4}$ years), is considerably shorter than that of any other small planet. It is also less than that of Encke’s Comet, which has hitherto taken the lead after *Mars*. The position of her orbit is favourable to Olbers’ well-known idea with regard to the origin of this zone of planets, an hypothesis which is also countenanced by the elements of *Hebe* and *Astræa*.

“According to the latest and most accurate determinations of their elements, it appears probable that the small planets now have the following order with respect to mean distance from the sun :—*Flora*, *Iris*, *Vesta*, *Hebe*, *Astræa*, *Juno*, *Ceres*, *Pallas*.

“*Iris*, *Vesta*, and again *Ceres*, *Pallas*, are so close upon each other, that the effects of perturbations may alter their relation in order of mean distance. It will be remarked that the inclinations of three of the orbits of the newly discovered planets, viz. those of *Astræa*, *Iris*, and *Flora*, are nearly the same.”

By M. d’Arrest.

1847, October 18, at 12^h M.T. at Berlin.

M	13	44	26 ^o 94	} M. Eq. 1847 ^o 0
π	32	18	34 ^o 63	
Ω	110	23	2 ^o 42	
<i>i</i>	5	52	21 ^o 74	
ϕ	9	8	38 ^o 15	
μ	1084	0800		
Log α	0	3433161		

From the Berlin Meridian Observations of Oct. 22, Nov. 2, and Nov. 17.

Ephemeris. For Greenwich Mean Midnight.

By Mr. Hind.

1847.				R.A.			N.P.D.			1848.				R.A.			N.P.D.			
				m	s		o	'	"					h	m	s	o	'	"	
Dec.	9	4	28	8	3		75	39	32		Jan.	5	4	9	59	2	73	49	17	
	10		27	5	6			36	47			6		9	49	1		43	58	
	11		26	4	0			33	56			7		9	41	4		38	35	
	12		25	3	6			30	58			8		9	36	1		33	8	
	13		24	4	4			27	52			9		9	33	2		27	37	
	14		23	6	6			24	41			10		9	32	6		22	2	
	15		22	10	3			21	22			11		9	34	4		16	24	
	16		21	15	6			17	57			12		9	38	5		10	42	
	17		20	22	5			14	25			13		9	45	0	73	4	57	
	18		19	31	1			10	48			14		9	53	7	72	59	9	
	19		18	41	5			7	4			15		10	4	7		53	18	
	20		17	53	8		75	3	14			16		10	18	0		47	25	
	21		17	8	0		74	59	18			17		10	33	5		41	29	
	22		16	24	1			55	16			18		10	51	2		35	31	
	23		15	42	3			51	9			19		11	11	1		29	31	
	24		15	2	6			46	55			20		11	33	2		23	29	
	25		14	24	9			42	36			21		11	57	4		17	25	
	26		13	49	4			38	11			22		12	23	7		11	20	
	27		13	16	1			33	40			23		12	52	1	72	5	13	
	28		12	45	0			29	4			24		13	22	5	71	59	5	
	29		12	16	1			24	23			25		13	54	9		52	55	
	30		11	49	5			19	37			26		14	29	4		46	45	
	31		11	25	3			14	45			27		15	5	8		40	34	
1848.												28		15	44	1		34	22	
Jan.	1		11	3	4			9	49			29		16	24	3		28	10	
	2		10	43	8		74	4	48			30		17	6	5		21	57	
	3		10	26	6		73	59	42			31		17	50	5		15	44	
	4	4	10	11	7		73	54	32		Feb.	1	4	18	36	3		71	9	30

The ephemeris gives the position of *Flora* referred to the true equinox. The aberration has not been applied, but the correction due to aberration is subjoined below for every fourth day, with the value of $497^s.8 \times \Delta$ and the horizontal parallax.

1847.	Corr. for Ab.		$497^s.8$ $\times \Delta$	Hor. Par.	1848.	Corr. for Ab.		$497^s.8$ $\times \Delta$	Hor. Par.
	R.A.	N.P.D.				R.A.	N.P.D.		
Dec. 11	^s +0.33	["] +1.0	["] 472.1	["] 9.05	Jan. 8	^s +0.03	["] +2.1	["] 561.8	["] 7.61
15	.31	1.1	480.0	8.91	12	-0.04	2.3	580.2	7.37
19	.28	1.3	489.6	8.73	16	.10	2.5	599.7	7.13
23	.24	1.5	501.0	8.53	20	.17	2.6	620.2	6.88
27	.19	1.6	514.0	8.31	24	.23	2.7	641.5	6.66
31	.14	1.8	528.5	8.09	28	.30	2.9	663.6	6.44
1848.					Feb. 1	-0.36	+3.0	686.3	6.23
Jan. 4	+0.08	+2.0	544.5	7.85					